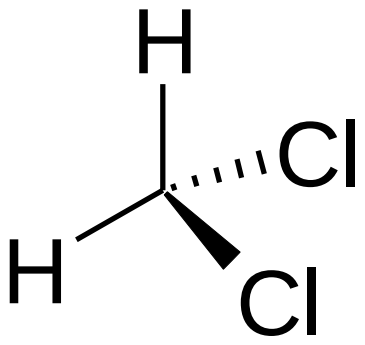
United States
Environmental Protection Agency

June 2020
Office of Chemical Safety and
Pollution Prevention

Nontechnical Summary of the Risk Evaluation for Methylene Chloride (Dichloromethane, DCM)

CASRN: 75-09-2



ACTION

- EPA is releasing a final risk evaluation on methylene chloride (MC). After evaluating 53 conditions of use of MC, EPA has determined that six conditions of use of MC do not present an unreasonable risk of injury to health, while 47 present an unreasonable risk. EPA also determined that MC does not present an unreasonable risk to the environment under the conditions of use.
- This final risk evaluation is conducted pursuant to the Toxic Substances Control Act (TSCA), as amended by the Frank R. Lautenberg Chemical Safety for the 21st Century Act, which requires EPA to evaluate existing chemical substances to determine whether a chemical substance presents an unreasonable risk of injury to health or the environment under the conditions of use. If a chemical substance is determined to present an unreasonable risk under its conditions of use, EPA must address the unreasonable risk through risk management action.
- The final risk evaluation and supplemental materials can be found in docket EPA-HQ-OPPT-2019-0437 on www.regulations.gov.
- MC was selected in 2016 as one of the first 10 chemicals for risk evaluation under section 6 of TSCA.
- Public comments and external scientific peer review informed the development of the MC final risk evaluation. EPA published the MC draft risk evaluation in October 2019, the MC problem formulation document in June 2018, and the MC scope document in June 2017.

KEY POINTS

- After evaluating 53 conditions of use of MC, EPA determined that all but six conditions of use of MC present an unreasonable risk of injury.
- For all conditions of use found to present unreasonable risk, EPA's determination is based on unreasonable risks of injury to workers and occupational non-users[1] (ONUs) during occupational exposures, and/or to consumers and bystanders during exposures to consumer use.
- EPA found that there was unreasonable risk of non-cancer effects from acute (central nervous system) and chronic (liver) inhalation exposures.
- The conditions of use for which no unreasonable risks were found include processing into a formulation, industrial and commercial uses such as degreasing and cleaning and adhesives, and consumer uses such as automotive care products.
- The conditions of use that EPA determined do not present an unreasonable risk are domestic manufacture, processing as a reactant, recycling, distribution in commerce, industrial and commercial use as a laboratory chemical, and disposal. (See tables below for complete list of conditions of use and determined unreasonable risk.)
- As part of the problem formulation for MC, EPA found that exposures to the general population may occur from MC conditions of use due to releases to air, water or land. Exposures to the general population via surface water, drinking water, ambient air and sediment pathways fall under the jurisdiction of other environmental statutes administered by

[1] Workers that are in the vicinity of but are not actively working with the chemical under evaluation.

EPA, i.e., CWA, SDWA, CAA, and RCRA. EPA believes it is both reasonable and prudent to tailor TSCA risk evaluations when other EPA offices have expertise and experience to address specific environmental media, rather than attempt to evaluate and regulate potential exposures and risks from those media under TSCA. EPA has therefore tailored the scope of the risk evaluation for MC and did not evaluate hazards or exposures to the general population in this risk evaluation, or make a risk determination for the general population.

- EPA released the draft risk evaluation for MC in October 2019 for a 60-day public comment period. Additionally, EPA held a peer review meeting of EPA's Science Advisory Committee on Chemicals (SACC) on the draft risk evaluation of MC on December 3-4, 2019. The report is in the docket (EPA-HQ-OPPT-2019-0437). Along with the final risk evaluation, EPA is releasing a document that provides a response to public and peer review comments.

BACKGROUND

- MC is a colorless liquid and a volatile organic chemical with a sweet odor resembling chloroform that is produced and imported into the United States.
- MC is currently manufactured, processed, distributed in commerce, used for industrial, commercial, and consumer uses, and disposed of. MC has a wide range of uses, including as a solvent, propellent, processing aid, or functional fluid in the manufacturing of other chemicals. A variety of consumer and commercial products use MC as a solvent including sealants, automotive products, and paint and coating removers. The total aggregate production volume was ~264 million pounds between 2012 and 2015.
- EPA's risk evaluation identified unreasonable risks for cancer and non-cancer adverse effects from acute (central nervous system) and chronic (liver) inhalation and dermal exposure to MC.
    - EPA used central nervous system effects to identify unreasonable risks because relatively small increases in exposure can lead from central nervous system effects to more severe effects, including death.
- Prior assessment and action under TSCA:
    - In March 2019, EPA issued a final regulation prohibiting the manufacture (including import), processing, and distribution of MC in all paint removers for consumer use. Since November 22, 2019, paint removal products containing MC may not be sold at any retail or distribution establishments that have consumer sales, including e-commerce sales. The use of MC for commercial paint and coating removal was allowed to continue.
    - The action was based on a 2014 risk assessment for MC which addressed only paint and coating removal uses.
- Evaluation and risk management steps for the current MC final risk evaluation:
    - EPA has issued the final risk evaluation for MC, meeting the requirements set forth in TSCA for chemical risk evaluations. EPA is now initiating the process to address the unreasonable risks identified.

SUMMARY OF UNREASONABLE RISK DETERMINATIONS

EPA has determined that the following conditions of use of methylene chloride do not present an unreasonable risk of injury to health or the environment. These determinations are considered final agency action and are being issued by order pursuant to TSCA section 6(i)(1).

Conditions of Use that Do Not Present an Unreasonable Risk
• Manufacturing (Domestic Manufacture) • Processing: as a reactant • Processing: recycling • Distribution in commerce • Industrial and commercial use as laboratory chemical • Disposal

EPA has determined that the following conditions of use of methylene chloride present an unreasonable risk of injury to health. EPA will initiate TSCA section 6(a) risk management actions on these conditions of use as required under TSCA section 6(c)(1). Pursuant to TSCA section 6(i)(2), the unreasonable risk determinations for these conditions of use are not considered final agency action.

Manufacturing that Presents an Unreasonable Risk
• Import

Processing that Present an Unreasonable Risk
• Processing: incorporation into a formulation, mixture, or reaction products • Processing: repackaging

Industrial and Commercial Uses that Present an Unreasonable Risk
• Industrial and commercial use as solvent for batch vapor degreasing • Industrial and commercial use as solvent for in-line vapor degreasing • Industrial and commercial use as solvent for cold cleaning • Industrial and commercial use as solvent for aerosol spray degreaser/cleaner • Industrial and commercial use in adhesives, sealants and caulks • Industrial and commercial use in paints and coatings

- Industrial and commercial use in paint and coating removers
- Industrial and commercial use in adhesive and caulk removers
- Industrial and commercial use in metal aerosol degreasers
- Industrial and commercial use in metal non-aerosol degreasers
- Industrial and commercial use in finishing products for fabric, textiles and leather
- Industrial and commercial use in automotive care products (functional fluids for air conditioners)
- Industrial and commercial use in automotive care products (interior car care)
- Industrial and commercial use in automotive care products (degreasers)
- Industrial and commercial use in apparel and footwear care products
- Industrial and commercial use in spot removers for apparel and textiles
- Industrial and commercial use in liquid lubricants and greases
- Industrial and commercial use in spray lubricants and greases
- Industrial and commercial use in aerosol degreasers and cleaners
- Industrial and commercial use in non-aerosol degreasers and cleaners
- Industrial and commercial use in cold pipe insulations
- Industrial and commercial use as solvent that becomes part of a formulation or mixture
- Industrial and commercial use as a processing aid
- Industrial and commercial use as propellant and blowing agent
- Industrial and commercial use for electrical equipment, appliance, and component manufacturing
- Industrial and commercial use for plastic and rubber products manufacturing
- Industrial and commercial use in cellulose triacetate film production
- Industrial and commercial use as anti-spatter welding aerosol
- Industrial and commercial use for oil and gas drilling, extraction, and support activities
- Industrial and commercial use in toys, playground and sporting equipment
- Industrial and commercial use in lithographic printing plate cleaner
- Industrial and commercial use in carbon remover, wood floor cleaner, and brush cleaner

Consumer Uses that Present an Unreasonable Risk

- Consumer use as solvent in aerosol degreasers/cleaners
- Consumer use in adhesives and sealants
- Consumer use in brush cleaners for paints and coatings
- Consumer use in adhesive and caulk removers
- Consumer use in metal degreasers
- Consumer use in automotive care products (functional fluids for air conditioners)
- Consumer use in automotive care products (degreasers)

- Consumer use in lubricants and greases
- Consumer use in cold pipe insulation
- Consumer use in arts, crafts, and hobby materials glue
- Consumer use in an anti-spatter welding aerosol
- Consumer use in carbon removers and other brush cleaners